

## **PROBLEM SUMMARY**

# Sample Rating Trend

-2014 A-2015 M-2015 A-2017 M-2018 A-2020 S-2020 C-2021 0-2022

## VISCOSITY



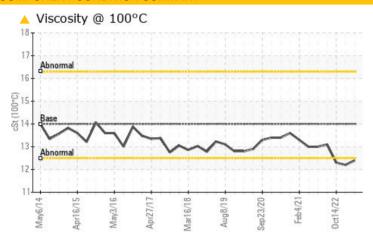


OKLAHOMA/102/HY - MOBILE EQUIPMENT 38.82 [OKLAHOMA^102^HY - MOBILE EQUIPMENT]

**Diesel Engine** 

MOBIL DELVAC 1300 SUPER15W40 (--- GAL)

### **COMPONENT CONDITION SUMMARY**



#### RECOMMENDATION

Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor.

| PROBLEMATIC TEST RESULTS |     |           |    |             |               |               |  |  |
|--------------------------|-----|-----------|----|-------------|---------------|---------------|--|--|
| Sample Status            |     |           |    | ATTENTION   | ATTENTION     | ATTENTION     |  |  |
| Visc @ 100°C             | cSt | ASTM D445 | 14 | <b>12.4</b> | <u>▲</u> 12.2 | <u>▲</u> 12.3 |  |  |

Customer Id: SHEWIC Sample No.: WC0808067 Lab Number: 05923169 Test Package: CONST



To manage this report scan the QR code

To discuss the diagnosis or test data:

Don Baldridge +1 don.b505@comcast.net

To change component or sample information: Customer Service +1 1-800-237-1369 customerservice@wearcheck.com

#### **RECOMMENDED ACTIONS**

| Action        | Status | Date | Done By | Description   |
|---------------|--------|------|---------|---|
| Change Fluid  |        |      | ?       | Oil and filter change at the time of sampling has been noted. |
| Change Filter |        |      | ?       | Oil and filter change at the time of sampling has been noted. |

#### HISTORICAL DIAGNOSIS

#### 10 Feb 2023 Diag: Don Baldridge

#### VISCOSITY



Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor. All component wear rates are normal. There is no indication of any contamination in the oil. The oil viscosity is lower than normal. The BN result indicates that there is suitable alkalinity remaining in the oil. Confirm oil type.



#### 14 Oct 2022 Diag: Don Baldridge

#### VISCOSITY



Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor. All component wear rates are normal. Fuel content negligible. There is no indication of any contamination in the oil. The oil viscosity is lower than normal. The BN result indicates that there is suitable alkalinity remaining in the oil. Confirm oil type.



#### 04 Apr 2022 Diag: Wes Davis

#### NORMAL



Resample at the next service interval to monitor. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample. All component wear rates are normal. There is no indication of any contamination in the oil. The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.





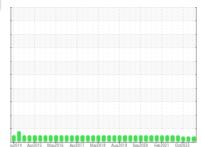
## **OIL ANALYSIS REPORT**



OKLAHOMA/102/HY - MOBILE EQUIPMENT 38.82 [OKLAHOMA^102^HY - MOBILE EQUIPMENT]

**Diesel Engine** 

MOBIL DELVAC 1300 SUPER15W40 (--- GAL)



Sample Rating Trend





#### **DIAGNOSIS**

#### Recommendation

Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor.

#### Wear

All component wear rates are normal.

#### Contamination

There is no indication of any contamination in the oil.

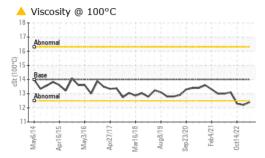
## Fluid Condition

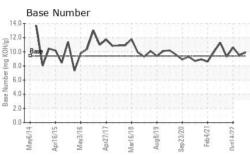
The oil viscosity is lower than normal. The BN result indicates that there is suitable alkalinity remaining in the oil. Confirm oil type.

| SAMPLE INFORM   | MATION  | method   | limit/base                           | current   | history1   | history2   |
|---|---|--|--------------------------------------|---|--|--|
| Sample Number   |   | Client Info  |                                      | WC0808067   | WC0758724  | WC0738462  |
| Sample Date   |   | Client Info  |                                      | 13 Jul 2023   | 10 Feb 2023  | 14 Oct 2022  |
| Machine Age   | hrs   | Client Info  |                                      | 12274   | 11968  | 11706  |
| Oil Age   | hrs   | Client Info  |                                      | 330   | 262  | 420  |
| Oil Changed   |   | Client Info  |                                      | Changed   | Changed  | Changed  |
| Sample Status   |   |  |                                      | ATTENTION   | ATTENTION  | ATTENTION  |
| CONTAMINATION   | N   | method   | limit/base                           | current   | history1   | history2   |
| Fuel  |   | WC Method  | >5                                   | <1.0  | <1.0   | 1.8  |
| Glycol  |   | WC Method  |                                      | NEG   | NEG  | NEG  |
| WEAR METALS   |   | method   | limit/base                           | current   | history1   | history2   |
| ron   | ppm   | ASTM D5185m  | >100                                 | 13  | 17   | 23   |
| Chromium  | ppm   | ASTM D5185m  | >6                                   | 0   | <1   | <1   |
| Nickel  | ppm   | ASTM D5185m  | >4                                   | 0   | 0  | 0  |
| Titanium  | ppm   | ASTM D5185m  | >2                                   | 0   | 0  | 0  |
| Silver  | ppm   | ASTM D5185m  | >2                                   | <1  | 0  | 0  |
| Aluminum  | ppm   | ASTM D5185m  | >30                                  | <1  | <1   | 1  |
| Lead  | ppm   | ASTM D5185m  | >10                                  | 1   | <1   | <1   |
| Copper  | ppm   | ASTM D5185m  | >150                                 | 2   | 3  | 4  |
| Tin   | ppm   | ASTM D5185m  | >4                                   | 0   | <1   | <1   |
| Vanadium  | ppm   | ASTM D5185m  |                                      | 0   | 0  | 0  |
| Cadmium   | ppm   | ASTM D5185m  |                                      | 0   | 0  | 0  |
| ADDITIVES   |   | method   | limit/base                           | current   | history1   | history2   |
| Boron   | ppm   | ASTM D5185m  | 0                                    | 52  | 56   | 48   |
| Barium  | ppm   | ASTM D5185m  | 0                                    | 2   | 0  | 0  |
| Molybdenum  |   |  |                                      |   |  |  |
|   | ppm   | ASTM D5185m  | 0                                    | 44  | 40   | 35   |
| -   | ppm<br>ppm  | ASTM D5185m<br>ASTM D5185m   | 0                                    | 44<br><1  |  | 35<br><1   |
| Manganese   |   |  | 0                                    |   | 40   |  |
| Manganese<br>Magnesium  | ppm   | ASTM D5185m  |                                      | <1  | 40<br><1   | <1   |
| Manganese<br>Magnesium<br>Calcium   | ppm<br>ppm  | ASTM D5185m<br>ASTM D5185m   |                                      | <1<br>471   | 40<br><1<br>470  | <1<br>443  |
| Manganese<br>Magnesium<br>Calcium<br>Phosphorus   | ppm<br>ppm<br>ppm   | ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m  |                                      | <1<br>471<br>1861   | 40<br><1<br>470<br>1752  | <1<br>443<br>1786  |
| Manganese<br>Magnesium<br>Calcium<br>Phosphorus<br>Zinc   | ppm<br>ppm  | ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m   |                                      | <1<br>471<br>1861<br>779                                      | 40<br><1<br>470<br>1752<br>754                                       | <1<br>443<br>1786<br>723   |
| Manganese<br>Magnesium<br>Calcium<br>Phosphorus<br>Zinc   | ppm<br>ppm<br>ppm<br>ppm<br>ppm   | ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m  |                                      | <1<br>471<br>1861<br>779<br>946                               | 40<br><1<br>470<br>1752<br>754<br>930                                | <1<br>443<br>1786<br>723<br>890<br>2917                                |
| Manganese<br>Magnesium<br>Calcium<br>Phosphorus<br>Zinc<br>Sulfur   | ppm<br>ppm<br>ppm<br>ppm<br>ppm   | ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m   | 0                                    | <1<br>471<br>1861<br>779<br>946<br>2860                       | 40<br><1<br>470<br>1752<br>754<br>930<br>2605                        | <1<br>443<br>1786<br>723<br>890<br>2917                                |
| Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS   | ppm<br>ppm<br>ppm<br>ppm<br>ppm   | ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>method   | 0 limit/base                         | <1<br>471<br>1861<br>779<br>946<br>2860<br>current            | 40<br><1<br>470<br>1752<br>754<br>930<br>2605<br>history1            | <1<br>443<br>1786<br>723<br>890<br>2917<br>history2                    |
| Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium  | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm                                  | ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>method<br>ASTM D5185m  | limit/base >20                       | <1<br>471<br>1861<br>779<br>946<br>2860<br>current            | 40<br><1<br>470<br>1752<br>754<br>930<br>2605<br>history1            | <1<br>443<br>1786<br>723<br>890<br>2917<br>history2                    |
| Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium  | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm                                  | ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>ASTM D5185m<br>method<br>ASTM D5185m<br>ASTM D5185m   | limit/base >20                       | <1 471 1861 779 946 2860  current 4                           | 40<br><1<br>470<br>1752<br>754<br>930<br>2605<br>history1<br>4<br><1 | <1 443 1786 723 890 2917 history2 5 0 0                                |
| Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium                                      | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm                                  | ASTM D5185m  Method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m  | limit/base >20 >20                   | <1 471 1861 779 946 2860  current 4 0 1                       | 40<br><1<br>470<br>1752<br>754<br>930<br>2605<br>history1<br>4<br><1 | <1 443 1786 723 890 2917 history2 5 0 0                                |
| Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot %                     | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm                           | ASTM D5185m  | limit/base >20                       | <1 471 1861 779 946 2860  current 4 0 1  current              | 40 <1 470 1752 754 930 2605 history1 4 <1 1 history1                 | <1 443 1786 723 890 2917 history2 5 0 history2                         |
| Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration           | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm                    | ASTM D5185m  | limit/base >20                       | <1 471 1861 779 946 2860 current 4 0 1 current 0.5            | 40 <1 470 1752 754 930 2605 history1 4 <1 1 history1 0.4             | <1 443 1786 723 890 2917 history2 5 0 0 history2 0.7                   |
| Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration           | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>Abs/.1mm | ASTM D5185m  Method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m  Method  *ASTM D7844  *ASTM D7624  | limit/base >20 >20 limit/base >3 >20 | <1 471 1861 779 946 2860  current 4 0 1  current 0.5 7.6      | 40 <1 470 1752 754 930 2605 history1 4 <1 1 history1 0.4 7.2         | <1 443 1786 723 890 2917 history2 5 0 0 history2 0.7 9.3 24.5          |
| Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation | ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>ppm<br>Abs/.1mm | ASTM D5185m  Method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m  ASTM D5185m  ASTM D5185m  ASTM D5185m  ASTM D5185m  ASTM D76185m  ASTM D7844  *ASTM D7624  *ASTM D76185 | 0                                    | <1 471 1861 779 946 2860  current 4 0 1  current 0.5 7.6 22.3 | 40 <1 470 1752 754 930 2605 history1 4 <1 1 history1 0.4 7.2 21.9    | <pre>&lt;1 443 1786 723 890 2917 history2 5 0 0 history2 0.7 9.3</pre> |



## **OIL ANALYSIS REPORT**

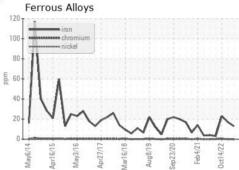


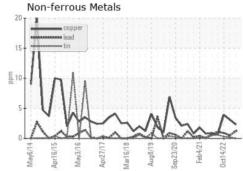


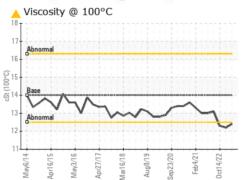
| VISUAL                  |        | method  | limit/base | current | history1 | history2 |
|-------------------------|--------|---------|------------|---------|----------|----------|
| White Metal             | scalar | *Visual | NONE       | NONE    | NONE     | NONE     |
| Yellow Metal            | scalar | *Visual | NONE       | NONE    | NONE     | NONE     |
| Precipitate             | scalar | *Visual | NONE       | NONE    | NONE     | NONE     |
| Silt                    | scalar | *Visual | NONE       | NONE    | NONE     | NONE     |
| Debris                  | scalar | *Visual | NONE       | NONE    | NONE     | NONE     |
| Sand/Dirt               | scalar | *Visual | NONE       | NONE    | NONE     | NONE     |
| Appearance              | scalar | *Visual | NORML      | NORML   | NORML    | NORML    |
| Odor                    | scalar | *Visual | NORML      | NORML   | NORML    | NORML    |
| <b>Emulsified Water</b> | scalar | *Visual | >0.2       | NEG     | NEG      | NEG      |
| Free Water              | scalar | *Visual |            | NEG     | NEG      | NEG      |

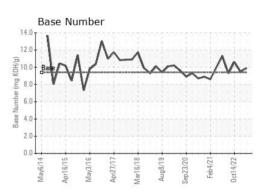
| FLUID FROFERITES |     | method    | IIIIII/Dase | Current     | HISTORY  | HISTORY       |  |
|------------------|-----|-----------|-------------|-------------|----------|---------------|--|
| Visc @ 100°C     | cSt | ASTM D445 | 14          | <b>12.4</b> | <u> </u> | <b>▲</b> 12.3 |  |

#### **GRAPHS**













Laboratory Sample No.

Lab Number

Unique Number : 10603116

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : WC0808067 : 05923169

Received Diagnosed

: 15 Aug 2023 Diagnostician : Don Baldridge

: 14 Aug 2023

Test Package : CONST ( Additional Tests: TBN )

To discuss this sample report, contact Customer Service at 1-800-237-1369. \* - Denotes test methods that are outside of the ISO 17025 scope of accreditation.

Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

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